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CLERK
OF THE 532.01.4
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SURVEIGH
Surveighed,

AND
His RIGGING Cast.

OR,
A brief view taken of the Book intituled, The Sizes
and Lengths of Rigging for all the States Ships and Frigats,
lately put forth by Mr Hayward Clerk of the Surveigh at
Chatham; the irregularities whereof are here
in part discovered.

By George Kendall M. A. Clerk of the Surveigh
at Deptford and Woolwich.



Printed for the Author in the year 1756.

THE
C L E R K

OF THE
SURVEIGH

Surveigh

AND
His R. Coing Cal.

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A brief view taken of the Book intitled, The Sixes
and Lengths of Rigging for all the Ships and Frigates
lately put forth by Mr. Hayward Clerk of the Surveigh
Containing the Instructions wherewith are here
in part directed

By George Keable M: A. Clerk of the Surveigh
at Dublin and W. Smith

Printed for the Author at 1740

To his Highness

OLIVER

LORD PROTECTOR OF
The Commonwealth of England,
Scotland and Ireland.

May it please your Highness,

THe Survey business hath not without
cause been stiled the mystery of the Na-
vy, there being no particular thing wher-
in the State may more closely and subtilly be abu-
sed then in it; An evidence whereof, the ensuing
Tract may be, which discovers in part the irre-
gularity of that Book lately presented to your
Highness as yours de Jure, intituled, The Sizes
and Lengths of rigging for all the States Ships
and Frigats. I conceived it my duty to tender it
to your Highness in regard God by his provi-
dence hath placed you at the helm of Govern-
ment, not for the patronizing but redressing the
grievances of the Nation.

The Epistle.

Vouchsafe, I beseech you, to accept of this from one who as he hath formerly faithfully served the Commonwealth under your Highnesses command in another capacity, desireth to do so also in this wherein he is now set, by discovering fraud and bringing forth truth to light, it being his chiefest aim that Righteousness and Iustice (which is the surest foundation of peace and tranquillity) may take place, and be established amongst us: I shall submit to your Highnesses pleasure to determine, whether this work shall be admitted publick view, or be confined as that Rigging book was, or wholly suppressed, and shall remain,

Your Highnesses most

faithful Servant

GEORGE KENDALL.

T O

To the Right Honorable
THE
COMMISSIONERS
Of the Admiralty and Navy.

Although I have met with discouragements by false reports that have been made of me for my endeavours to do the State service, yet I cannot see injury done to the Common-wealth, but I must make it known; I have therefore adventured to present to your Honors view some brief observations that I have taken of that Book intituled; The Sizes and Lengths of Rigging for all the States Ships and Frigats.

It is reported that the Docking of one of the greater Ships hath been formerly fifty or sixty pounds advantage to the Carpenter of her: I may safely affirm that if the allowances in that book be made, the Rigging of one of them will be far greater gain to the Boatswain, though he should have sharers with him in it. I leave all to your Honors consideration, and remain

at your Honors command

George Kendall.

TO

To the Right Worshipful
THE
COMMISSIONERS
Of the Navy.

Right Worshipful,

I*T immediately belongs unto you to see abuses of this nature (as this small Tract presents unto you) redressed: I have therefore tendered it unto you. That the State should be wronged two or three hundred pound in the Rigging of a Ship, is a thing that requires to be taken notice of, especially considering how many of the great Ships of late years have been, and now are set forth to sea. Were only some running ropes cut too long, it might be better excused and born with, but for the standing Rigging there can be no pretence. I do suppose no Boatswain would be so simple as to seize up three or four fathoms of a Stay or a Shroud to make him self ridiculous to every one: what becomes then of such overlenghts, I leave to consideration. That the State might be righted, and every Ship may have her due allowance and no more, is the only aim and desire of him who is still ready to be*

at your Worships

Command

GEORGE KENDALL.



He that would Rigge a SHIP or FRIG-
GEE completely, must know as the
Length, Breadth, and Depth of the Ship, fo
the Dimensions of each Mast and Yard;
for upon them doth the Rigging princi-
pally depend, both for size and lengths:
That the size of the Stay should bee half
the Diameter of the Mast, and the Shrouds
half the Stay, is a common rule; yet that
is varied from by experienced Sea-men, as
they finde their Ships more or lesse labour-
some in the Sea; but the length may bee
found out exactly by the doctrine of Tri-
angles, especially of the standing Rigging;
for having two sides, and the angle be-

tween them, the third may be found out by an ordinary Artift. Having the
length of the Mast from the Crosse-trees to the Partners for the Perpendicular,
and half the breadth of the Ship for the Base, the Hypothenusall, or Side sub-
tending, is the length of the Shroud. Again, having the same part of the
Mast, and half the length Keele, or the distance between the Main-mast and
Fore-mast for the two sides of the triangle, the third being found out will be
the length of the Stay, making an allowance for the Coller at the head of the
Mast; but the Boat-swains have more familiar rules, which comes something
near the the truth; viz. the length of the Keele is the length of the Stay in short
Ships, in greater the Stay may be shorter a fathome, or more. The *Nacisby*'s
Stay is near two fathoms shorter then the Keele, the Dunbarres above two fa-
thoms shorter. The length of the Shrouds must be two thirds of the Mast; the
Top-mast Shrouds the length of the Top-mast, from the Crosse-trees to the
uppermost part of the Fid-hole; the Top-mast Back-staies the length from
the Hounds to the Deck: but these rules and the rest, are known to those that
are fit to take Charge of Shipr, as Boat-swains, I shall therefore name no more.

If the Book intituled, *The Sizes and Lengths of Rigging for all the States
Ships or Frigots* be examined by these or the like rules, it will be found very ex-
orbitant in Length, and that much to the States prejudice. The *Sovereign*'s
Main-stay will be found four, if not five fathoms too long, and her Shrouds
each pair near three fathoms, which will amount to fourteen or fifteen pounds
worth of Cordage, and the like excessse will be found in the rest of the Rig-
ging. But that the damage the State suffers by that Book may more plainly
appear, I shall set down a parallel between that in the second Columnne of the
Book, allotted by the Author for the *Resolution* and *Nacisby*, and what the
Nacisby was Rigged with at *Woolwich* at her first setting out; as also between
that in the third Columnne, which amongst other Ships is appoointed for the
Swiftsure, and that with which the same Ship was Rigged with here at the set-
ting forth in the year 1653, in the conclusion whereof you have the number
of fathoms of each size reduced into weight by the Authors own rules, where
you may see the difference between them.

1000 TO 1000
 1000 TO 1000
 1000 TO 1000

	Resolution at Chatham.		Naseby at Woolwich.		Safford at Chatham.		Safford at Woolwich.	
	Inch	Fathoms	Inch	Fathoms	Inch	Fathoms	Inch	Fathoms
Pendants for Sheats	6	24	5 $\frac{1}{2}$	8	5 $\frac{1}{2}$	20	2 $\frac{1}{2}$	60
Falls for Sheats	4 $\frac{1}{2}$	60	4	70	4	56	2 $\frac{1}{2}$	38
Clutlines	3	46	3	40	3	40	2	34
Garnets	3	52	2 $\frac{1}{2}$	52	3	52	2	44
Lifts	3	60	3 $\frac{1}{2}$	46	3	60	3	3
<i>Bar-iron</i> Pendants of Braces	4	6	3 $\frac{1}{2}$	3	3	5	3	3
Falls of Braces	4 $\frac{1}{2}$	60	3	74	2 $\frac{1}{2}$	56	2	70
Halliards	4	36	3 $\frac{1}{2}$	24	3 $\frac{1}{2}$	34	3 $\frac{1}{2}$	20
Tye	6	14	6	6	6	12	5	5
Buntlines	3	40	2 $\frac{1}{2}$	34	2 $\frac{1}{2}$	36	2	30
Horse	6	10	4	10	5 $\frac{1}{4}$	9	3	8
Shrouds	3	28	3	18	2 $\frac{1}{2}$	24	2	18
Lahiards	1 $\frac{1}{4}$	15	1	12	1 $\frac{1}{4}$	15	1	9
Pendants of Braces	2 $\frac{1}{2}$	4	2	4	2	4	1 $\frac{1}{2}$	4
Falls of Braces	1 $\frac{1}{2}$	40	1 $\frac{1}{2}$	42	1 $\frac{1}{2}$	36	1	38
Tye	3	4	3	3	3	4	2 $\frac{1}{2}$	3
Halliards	2	15	2 $\frac{1}{2}$	18	2	12	2	10
Clutlines	2	36	2	40	2	36	1 $\frac{1}{2}$	40
Pendants of Back-staies	3	6	3	5	2 $\frac{1}{4}$	6	3	5
Falls of Back-staies	2	30	2 $\frac{1}{2}$	10	1 $\frac{1}{4}$	30	2	10
Lifts	2	28	2	18	1 $\frac{1}{2}$	24	1 $\frac{1}{2}$	18
Parrell ropes	2	5	2 $\frac{1}{2}$	4	1 $\frac{1}{2}$	5	2	2
Puttocks	3	12 $\frac{1}{2}$	3	9	2 $\frac{1}{2}$	12	2	2
Pendants of Tacles	3	3			2 $\frac{1}{2}$	3		
Falls of Tacles	2	18			1 $\frac{1}{4}$	13		
Pendants	7 $\frac{1}{2}$	24	7	18	7	16	6	7
Runners of Tacles	5	87	5	30	5	55	5	28
and Falls	3 $\frac{1}{2}$	182	3 $\frac{1}{2}$	148	3 $\frac{1}{2}$	115	3 $\frac{1}{2}$	64
Shrouds	7 $\frac{1}{2}$	208	7	176	6 $\frac{1}{2}$	178	6	163
Laniards	4	80	3 $\frac{1}{2}$	72	4	64	3 $\frac{1}{2}$	63
<i>Fore-mast</i> Standing back-staies	7 $\frac{1}{2}$	26			7	22		
alias shrouds	4	10			4	10		
Laniards	13	16	12	13	12	14	12	12
Stay	5	12	4 $\frac{1}{2}$	10	5	10 $\frac{1}{2}$	4 $\frac{1}{2}$	9
Laniard	7 $\frac{1}{2}$	22			7	21		
Tie	6	50			5	48		
Halliards	6	90	6	100	5	48	5 $\frac{1}{2}$	80
Jeeres	3 $\frac{1}{2}$	80	3 $\frac{1}{2}$	62	3 $\frac{1}{2}$	60	3	60
Lifts	5	15	4 $\frac{1}{2}$	18	4 $\frac{1}{2}$	15	4 $\frac{1}{2}$	12
Parrell ropes								

	Resolution at Chatham		Naseby at Woolwich		Swiftsure at Chatham		Swiftsure at Woolwich	
	Inch Fathoms		Inch Fathoms		Inch Fathoms		Inch Fathoms	
Brest ropes	7	8			8 $\frac{1}{2}$	6		
Sheets	6	90	5	74	5	83	4 $\frac{1}{2}$	70
Jacks	8	56	7	48	7	40	6	32
Bow-lines	4 $\frac{1}{2}$	70	4	46	4	50	3 $\frac{1}{2}$	54
Bridles	4	14	3 $\frac{1}{2}$	6	3 $\frac{1}{2}$	12	3 $\frac{1}{2}$	5
Pendants of Braces	3 $\frac{1}{2}$	8	3 $\frac{1}{2}$	6	3	8	3	6
Falls of Braces	3	60	3	56	2 $\frac{1}{2}$	50	2 $\frac{1}{2}$	54
Clugarnets	3	80	3 $\frac{1}{2}$	56	3	76	3	54
Buntlines	3	150	2 $\frac{1}{2}$	14	2 $\frac{1}{2}$	136	2 $\frac{1}{2}$	84
Runners of martnets	2 $\frac{1}{2}$	48	3	14	2 $\frac{1}{2}$	36	2 $\frac{1}{2}$	42
Falls of leeche lines	2 $\frac{1}{2}$	95	2 $\frac{1}{2}$	60	2 $\frac{1}{2}$	88	2 $\frac{1}{2}$	42
Pendants and of Tacks	4	5	3 $\frac{1}{2}$	6	3 $\frac{1}{2}$	4 $\frac{1}{2}$	3 $\frac{1}{2}$	6
Falls	2	28	2	34	2	28	2	32
Shrouds	4	70	4	66	4	67	4	52
Laniards	2	27	2 $\frac{1}{2}$	24	2	27	2	20
Puttocks	4 $\frac{1}{2}$	60	3 $\frac{1}{2}$	66	4 $\frac{1}{2}$	54	4	26
Stay	5	15	4 $\frac{1}{2}$	16	5	15	4 $\frac{1}{2}$	14
Pendants of the Laniards	3 $\frac{1}{2}$	30	3 $\frac{1}{2}$	28	3 $\frac{1}{2}$	26	3	12
Tye	5 $\frac{1}{2}$	10	6	9	5 $\frac{1}{2}$	8	6	8
Runner	5	20	4 $\frac{1}{2}$	21	4 $\frac{1}{2}$	17	4 $\frac{1}{2}$	10
Halliards	3 $\frac{1}{2}$	66	3 $\frac{1}{2}$	47	3 $\frac{1}{2}$	52	3 $\frac{1}{2}$	44
Standing Back-stays	4 $\frac{1}{2}$	36	4	72	4 $\frac{1}{2}$	33	4	68
Laniards to them	2 $\frac{1}{2}$	12	2 $\frac{1}{2}$	7	2 $\frac{1}{2}$	10	2 $\frac{1}{2}$	10
Running Back-stays	4	12	3 $\frac{1}{2}$	18	3 $\frac{1}{2}$	12	3	
Falls to them	3	48	2 $\frac{1}{2}$	24	3	44	2	
Lifts	2 $\frac{1}{2}$	46	3	64	2 $\frac{1}{2}$	41	2	58
Bow-lines	2 $\frac{1}{2}$	84	2 $\frac{1}{2}$	68	2 $\frac{1}{2}$	74	2	60
Bridles	2	14	2 $\frac{1}{2}$	10	2	14	2	10
Pendants and of Braces	3	5	3	4	2 $\frac{1}{2}$	5	2 $\frac{1}{2}$	5
Falls	2	75	3 $\frac{1}{2}$	66	3	66	2	64
Pendants of the top	7	14 $\frac{1}{2}$	7	19	7	14	7	12
Falls of ropes	5	44 $\frac{1}{2}$	4	45	5	38	4	44
Sheets	6	64	6 $\frac{1}{2}$	54	6	60	5 $\frac{1}{2}$	50
Clulines	3	80	3 $\frac{1}{2}$	80	3	72	3	78
Parrel ropes	3	10	3	10	3	8	3	6
Buntlines	3	36	2 $\frac{1}{2}$	40	2 $\frac{1}{2}$	36	2 $\frac{1}{2}$	36

A 3 ————— Pendants

		Reflexion at Chatham		Reflexion at Woolwich		Snuff-saw at Chatham		Snuff-saw at Woolwich	
		Inch	Fathoms	Inch	Fathoms	Inch	Fathoms	Inch	Fathoms
	Pendants of Tackles	2 1/2	5			2	4		
07	Land Falls	1 1/2	24			1 1/2	20		
12	Shrouds	2	30	2 1/2	18	2	22	2	14
17	Laniards	1 1/2	18	1	14	1 1/2	15	1 1/2	6
22	Pendants of Back and Falls	1 1/2	7	2 1/2	48	2	8		
27	Stays	1 1/2	70	1 1/2	6	1 1/2	68		
32	Puttocks	2 1/2	16	2	8	2	16		
37	Top-rope	3	30			3	30		
42	Stay	2 1/2	30	2	22	2 1/2	27	1 1/2	18
47	Laniard of the Stay	1 1/2	9			1 1/2	9		
52	Tye	3	5	3	3 1/2	2 1/2	7	2 1/2	3
57	Halliards	1 1/2	38	2	35	1 1/2	24	1 1/2	30
62	Lifts	1 1/2	28	1 1/2	24	1 1/2	24	1 1/2	20
67	Braces	1	70	1 1/2	68	1	64	1	60
72	Pendants	2	3	2	3	1 1/2	13	1 1/2	5
77	Clutlines	1 1/2	65	2	70	1 1/2	46	1 1/2	60
82	Bow-lines	1 1/2	65	1	70	1 1/2	60	1 1/2	65
87	Bridles	1 1/2	65	1	70	1 1/2	60	1 1/2	65
92	Pendants of Crane & Falls	2 1/2	47			1 1/2	24		
97	Parrel ropes	2	4	2	3	2	3	1 1/2	2
01	Pendants	8	40	8	23	7	18	6 1/2	7
06	Runners of Tackles	5 1/2	87	6	30	5	56	5	28
11	and Falls	3 1/2	182	3 1/2	152	3 1/2	115	3 1/2	66
16	Shrouds	8	245	8	240	7 1/2	216	7 1/2	168
21	Laniards	4	100	5 1/2	80	4	90	3 1/2	64
26	Standing back-staies, alias shrouds	8	28			7 1/2	24		
31	Laniards	4	10			4	10		
36	Stay	16	23	15	20	15	20	15	17
41	Collar of the Stay	15	11	14	10	13	9	13	8
46	Laniard of the Stay	5 1/2	16	5	16	5 1/2	16	5	12
51	Lifts	4	90	3 1/2	72	3 1/2	80	3	64
56	Tackles	9	58	7 1/2	40	8 1/2	46	6 1/2	32
61	Sheets	6 1/2	96	5 1/2	78	6 1/2	90	4 1/2	74
66	Bow-lines	5	80	4	44	4 1/2	60	3	44
71	Bridles	4	24	3 1/2	14	4	18	3	10
76	Pendants of Bra-ces	4	12	3 1/2	8	3 1/2	10	3	6
81	and Falls	3 1/2	84	3 1/2	70	3	76	2 1/2	64
86	Clugarners	3 1/2	90	3 1/2	64	3	78	3	60
91	Tie	8	25			7 1/2	23		
96	Halliards	6	80			6	60		

swifsure
at Chatham.
swifsure
at Woolwich.

Resolution
at Chatham.
Nasby
at Woolwich
Swifsure
at Chatham.
Swifsure
at Woolwich.

Inc'h Fathoms Inc'h Fathoms Inc'h Fathoms Inc'h Fathoms

Jecres	3	100	6 $\frac{1}{2}$	123	7	92	6	96
Parrel ropes	6	34	5	20	5	27	4 $\frac{1}{2}$	15
Breft ropes	7	12				8		
Runners of martnets	2 $\frac{1}{2}$	60	2 $\frac{1}{2}$	66	2 $\frac{1}{2}$	40	2 $\frac{1}{2}$	50
Falls } or leech line	1 $\frac{1}{4}$	120	3 $\frac{1}{2}$	14	2 $\frac{1}{4}$	80		
Buntlines	3 $\frac{1}{2}$	204	3 $\frac{1}{2}$	168	3	176	2	92
Pendants	8	14	7	11	7 $\frac{1}{2}$	9	5 $\frac{1}{2}$	10
the Guy } of the	5 $\frac{1}{2}$	18	5	10	5	13	4	10
and Fall } Garnet,	4	40	5 $\frac{1}{2}$	45	4	38	3 $\frac{1}{2}$	30
Pendants } of Ta-	3	12	3 $\frac{1}{2}$	8	1 $\frac{1}{2}$	6	3 $\frac{1}{2}$	6
and Falls } cks.	2 $\frac{1}{2}$	70	2 $\frac{1}{2}$	38	1 $\frac{1}{2}$	42	2	36
Shrouds	5	90	4 $\frac{1}{2}$	100	1 $\frac{1}{4}$	92	4	78
Laniards	2 $\frac{1}{2}$	42	2 $\frac{1}{2}$	36	1 $\frac{1}{4}$	36	2	25
Standing Back-staies	5	40	4 $\frac{1}{2}$	136	5	40	4	74
Laniard	3	14	2 $\frac{1}{2}$	21	3	12	2 $\frac{1}{2}$	14
Running Back-staies	5	17	3 $\frac{1}{2}$	18	1 $\frac{1}{2}$	16		
Falls to them	3 $\frac{1}{2}$	60	2 $\frac{1}{2}$	24	3 $\frac{1}{2}$	48		
Stay	7	18	6	24	5	16	5	22
Laniard	4	12	3	20	3 $\frac{1}{2}$	12	3	10
Lifts	3	60	3	58	3 $\frac{1}{2}$	54	2	64
Pendants of Braces	3	7	3	6	3	6	2 $\frac{1}{2}$	5
Falls of Braces	2 $\frac{1}{2}$	80	1 $\frac{1}{2}$	68	1 $\frac{1}{2}$	75	2	60
Bow-lines	4	80	4	68	1 $\frac{1}{4}$	66	3 $\frac{1}{2}$	64
Bridles	3 $\frac{1}{2}$	22	3 $\frac{1}{2}$	14	3	18	3	10
Pendant } of the top-	3 $\frac{1}{2}$	21	8	15	3	18	7	13
Fall } rope	5 $\frac{1}{2}$	65	5	50	5 $\frac{1}{2}$	44	4	45
Sheets	7 $\frac{1}{2}$	80	7	56	7 $\frac{1}{2}$	80	6	52
Clulines	4	98	3 $\frac{1}{2}$	92	3 $\frac{1}{4}$	84	3 $\frac{1}{2}$	84
Tye	8	10	5	10	7	9	6	9
Runner	5	22	5	23	5	20	4 $\frac{1}{2}$	12
Halliards	3 $\frac{1}{2}$	58	3 $\frac{1}{2}$	60	3 $\frac{1}{2}$	58	3	54
Parrell ropes	3 $\frac{1}{2}$	12	3 $\frac{1}{2}$	12	3 $\frac{1}{2}$	10	3 $\frac{1}{2}$	6
Buntlines	4	58	2 $\frac{1}{2}$	84	3	54	2	40
Puttocks	5	80	3 $\frac{1}{2}$	84	5 $\frac{1}{2}$	65	3	50
Pendants } of Ta-	3	5			2 $\frac{1}{2}$	4		
and Falls } cks.	2	30			1 $\frac{1}{2}$	28		
Shrouds	3	36	3	21	2 $\frac{1}{2}$	32	2	16
Laniards	1 $\frac{1}{2}$	24	1	15	1 $\frac{1}{2}$	20	1 $\frac{1}{2}$	8

	Resolution at Chatham.		Naseby at Woolwich		Swiftsure at Chatham		Swiftsure at Woolwich	
	Inch Fathoms		Inch Fathoms		Inch Fathoms		Inch Fathoms	
Pendants } of Back	3	9	1 1/2	6	2 1/2	8		
and Falls } stales	2	86	2 1/2	52	1 1/4	85		
Stay	3	20	2 1/2	24	3	27	20	
Laniard of the Stay	2 1/2	6			2 1/4	4		
Pendants of Braces	2 1/2	5	2	3	2	5	64	
Falls of Braces	1 1/2	80	1 1/2	72	1 1/4	70		
Bow-lines	2	76	1 1/2	72	1 1/4	64	69	
Bridles	1 1/2	12	1 1/2	8	1 1/4	9		
Parrel ropes	2	7	2	3	2 1/4	6	2	
Top-rope	4	36			3 1/2	34		
Flag staff stay	2	24	1	20	1 1/4	19		
Tye	3	7	3	4	3	5	3 1/2	
Halliards	2 1/2	60	2	42	2	60	34	
Clulines	2	50	2	70	1 1/2	48	64	
Lifts	2	30	1 1/2	35	1 1/2	28	22	
Puttocks	3	28	3	14	2 1/2	25		
Pendants } of Tacles	5	12	3 1/2	7	4 1/2	6		
Runners } of Tacles	3 1/2	50			3 1/2	40		
and Falls } of Tacles	3	80	2 1/2	36	2 1/2	46		
Shrouds	1 1/2	132	4 1/2	114	4 1/2	95	80	
Laniards	2 1/2	48	2 1/2	35	2 1/2	40	30	
Tye	6 1/2	10			6	8 1/2		
Halliards	1 1/2	50	4	45	3 1/2	29 1/2	37	
Stay	5 1/2	14 1/2	5	14	4	12	12	
Laniard	3	6	3	5	2 1/2	5	3	
Sheat	3 1/2	22	4	22	3	20	16	
Jeere	5	40	5	18	4	27	16	
Trusse	3	40	3	20	2 1/2	2 1/2	20	
Bow-lines	3	20	3	18	2	15	13	
Brayls	2 1/2	186	2 1/2	98	2	129	140	
Parrel ropes	5	7	6	6	4	7	6	
Lifts	3 1/2	60	3	38	2 1/2	58	36	
Braces	2 1/2	52	2	48	2	48	36	
Pendants	3	6	2 1/2	4	2 1/2	6		
Halliards	3 1/2	32			3	30		
Pendants } of Tacles	3	7			2 1/2	6		
and } of Tacles								
Falls	2 1/4	30			2 1/4	30	16	
Shrouds	3	46	3	40	2 1/2	42		

	Resolution at Chatham.		Naseby at Woolwich		Swiftsure at Chatham		Swiftsure at Woolwich	
	Inch	Fathoms	Inch	Fathoms	Inch	Fathoms	Inch	Fathoms
Laniards	1 1/2	20	1 1/2	16	1 1/2	20		
Puttocks	3	30	2 1/2	16	2 1/2	25		
Pendants of Braces	2 1/2	4	2	3	2	4	2	3
Falls of Braces	2	40	1 1/2	38	1 1/2	40	1 1/2	34
Bow-lines	2	46	2	40	1 1/2	42		
Bridles	1 1/2	10	1 1/2	6	1 1/2	10	1 1/2	36
Clulines	2	66	2	36	1 1/2	56	2	40
Tye	3	7	3	5	3	7	2 1/2	3
Halliards	2 1/2	34	2	28	2	34	2	20
Liftes	2	36	1 1/2	28	1 1/2	30	1 1/2	22
Top-rope	3 1/2	32			3 1/2	28		
Parrell ropes	2 1/2	6	2	4	1 1/2	6	2	3
Pendant of the Stay	3	18			2 1/2	18		
Runners of the Stay	2 1/2	14	3	9	2	13	2 1/2	10
Parts	2	60			1 1/2	56		
Pendants of Back-staies	2 1/2	10	3	30	2 1/2	10		
Falls of Back-staies	2	36	1 1/2	6	1 1/2	34		
Pendants of Ca- and Falls tropes	7 5	36 90	6 1/2 3 1/2	32 66	6 3	70	3 1/2	50
Pendant of the Fish- and Fall's tacle	7 4	14 35	8 3 1/2	11 44	6 3 1/2	9 32	6 3 1/2	7 30
Stoppers at Bow	7	52	6 1/2	34	6	28	6	28
Shank-painters	7	40	6 1/2	30	6	24	6	18
Stoppers for the Stream Anchor	5	12	5	16	4	7	4	8
Shank-painter	5	10			4	6	4	8
Four Boy-ropes	8	100	8	80	7	100	6 1/2	68
Stream-Anchor Boy- rope	5	16	6	30	5	16	4	30
Kedge Anchor Boy- rope	5	16	1 1/2	20	1 1/2	16		
Slings for Ordinance	8	7	8	8	8	7	7	6
Vial	9	36	9	36	9	30	9	30
Passing rope	6	30			6	30		
Boat-rope	8 1/2	60	8	45	7 1/2	60	7	37
Geust rope	5	50	4	40	5	50	4	36
Pinnace rope	6	50	6	40	6	50	5 1/2	36
Geust rope	4 1/2	40	4	40	4	40	4	36
Two pare of But-slings	5	10	4	9	5	10	5	9
Hogheads slings	4	8	3 1/2	7	4	8	3 1/2	7
Woolding for the Bow-forc	7	80	2 6	130	6 1/2	70	2 6	50

	Resolution at Chatham.		Naseby at Woolwich		Swiftsure at Chatham.		Swiftsure at Woolwich.	
	Inch	Fathoms	Inch	Fathoms	Inch	Fathoms	Inch	Fathoms
Stoppers at Bits	9	20	8	24	9	20	9	8
Laniards	3	15	3	30	3	12	3	12
Pendant of the win-								
dling tacle	12	12	8	20	11	11	8	10
Robans, Earings, and	2	456	2	400	2	100		
Clurfeatings for one	2	456	1	400	2	173		
complete fails of fails	1	334	1	300	1	176	1	400
						108		

The total Number of Fathoms of the seaverall Sizes Reduced into weight.

Size	Resolution at Chatham				Naseby at Woolwich				Swiftsure at Chatham				Swiftsure at Woolwich			
	Inch	Fathom	C.	q ^r . l.	Fathom	C.	q ^r . l.		Fathom	C.	q ^r . l.		Fathom	C.	q ^r . l.	
1	0000	000	0	00	300	0000	3.21		0000	0000	0.00		0000	0020	0.00	
1	0070	000	1	06	361	001	2 09		266	001	0 15		0353	001	2 05	
1	852	005	3	12	887	006	0 11		1268	008	2 24		0772	005	2 06	
2	1418	016	3	09	1012	012	0 07		889	010	2 06		1200	014	1 12	
2	1570	026	2	00	1434	024	0 22		1507	025	1 20		0379	006	2 25	
3	1587	037	2	22	0631	015	0 00		1116	026	2 00		0638	015	0 17	
4	1023	027	1	17	1513	040	2 17		0813	021	3 11		0682	018	1 08	
4	0812	038	0	00	0588	027	2 02		0535	025	0 08		0665	031	0 20	
5	0340	017	1	25	0435	022	2 12		0381	019	2 11		0228	011	2 25	
5	0774	061	1	26	0265	016	2 14		0453	028	1 13		0122	007	2 23	
5	0196	014	2	14	0086	006	1 18		0097	007	0 26		0176	013	0 15	
6	0536	048	3	16	0415	037	3 13		0631	057	2 14		0418	038	0 16	
6	0106	010	1	16	0273	026	3 04		0264	025	3 17		0114	011	0 15	
7	0274	031	1	14	0324	037	0 04		0332	037	3 25		0243	027	3 05	
7	0360	047	0	02	0040	005	0 25		0332	043	1 13		0000	0		
8	0623	101	2	06	0458	074	2 17		0025	003	1 22		0010	001	1 24	
8	0080	012	2	00					0046	007	0 1					
9	0114	020	0	26	0036	006	1 16		0050	008	3 14		0038	006	2 27	
11									0011	002	3 0					
12	0012	003	2	05	0013	003	3 09		0014	004	0 1		0012	003	2 05	
13	0016	005	2	11					0009	003	0 0		0008	002	2 24	
14					0010	004	0 06									
15	0011	005	0	07	0020	009	0 2		0020	009	0 23		0017	007	3 09	
16	002	012	1	07												
	10998	544	2	17	9101	378	1 21		9060	377	3 24		6075	124	2 13	

The totall of all Sizes Fathoms, C. q^r. l. The total of all Sizes, Fathoms, C. q^r. l.
 of the Resolution, F. 10998. or 544.2. 17. the Swiftsure at Chatham, F. 9060. or 377.3. 24.
 and the Naseby, F. 9101. or 378.1. 21. the Swiftsure at Woolwich, F. 6075. or 124.2. 13.
 Difference, F. 1896. or 166.0. 24. Difference, F. 298. or 153.4. 11.

C. q. l.

The weight of the over-plus of	The Resolution	166.	0.	24.
	The Swiftness	153.	1.	11.
	The Totall is	319.	2.	6.

This at 40 *shil*: a Hundred, comes to 639, l. 2, s. 6, d. Is not not this a vast Summ for the *State* to lose in Rigging of two Ships.

I intended to have added a Paralell between the Providences Rigging in the sixth columnne, and what the same Ship was Rigged with at *Deptford*: but because she hath not been wholly ~~now~~ Rigged here, since I came here into the service I shall give you onely, a Paralell between a few particular Ropes supplied at *Deptford*, with the like in the Book, whereby you may have a view also of the Exorbitancie of allowances made to the lesser Ships, as well as to the greater.

		at Chatham		at Deptford	
		Inch	Fathoms	Inch	Fathoms
Fore-mast.	Pendants	5	8	5	6
	Runners } of Tackles	4	24	4	12
	Shrouds & back-staies	5	108	5	92
	Bow-lines	3	40	2½	36
	Lifts	2½	56	2½	40
	Sheets	4	52	3½	46
	Jacks	5	34	5	26
Fore-top-mast.	Buntlines	2	72	2	36
	Bow-lines	1½	60	1½	44
	Clullines	2	60	2	58
Main-mast.	Pendants } of Tackles	5½	16	5½	6
	Runners } cles	4½	20	4½	24
	Shrouds & Back-staies	5½	130	5½	114
	Stay	10	17	10	14
	Jacks	6	30	5½	24
	Lifts	3	70	3½	43
	Clugarnets	2½	60	2½	42
	Bow-lines	4	45	2½	34
	Jeeres	5	30	4	28
	Leech-line or martnets	2	80	2	34
Main-top-mast.	Buntlines	2	95	2	52
	Back-Staies	3	32	3½	30
	Falls of Braces	2	56	2	46
	Bowlines	3	48	2½	40
	Clullines	2½	64	2½	60
	Runner	3½	18	4	16

Catropes	4	30	3 ¹	28
Stoppers at Bow	4	24	4	16
Shank-painters	4	20	4	14
Four Boy-ropes	5	72	5 ¹	68
Boat-ropes	6	40	5 ¹	35
Gent-ropes	4	35	3 ¹	30

The total of all Sizes 1526. 1203.

Fathoms.	C.	q'	l.
1526.	61.	00.	
1203.	46.	1.	03.

The Difference is — 323 — 14. 3. 25.

When I first drew up the Paralell between the *Naseby* and the *Resolution*, I onely intended it for the View of those concerned in the regulating of abuses of that nature, and it had gone no further, but that I was told that the *Resolution* was a bigger Ship, and required more Rigging; broader I am informed it is by two Foot, but not so long by four Foot; Neither do I believe that her Masts and Yards are so long and square as the *Naseby's* are, she having three Hundred and Ten Yards of Canvas more in her two courses, and one Hundred fifteen yards in her two top Sallies then the *Resolution* hath. And as the Sallies to the Riggings must be proportionable to the Masts and Yards. The *Swiftsure* is the same Ship for dimensions, though new built, and her Masts and Yards as taunt and square as they were at the first. The *Providence* is not at all altered.

By these may be judged, what the rest are, and I perswade my self, that he that shall undertake to Rigge the whole Eight Ships with the quantity allowed for the four first, may do it compleatly, and save as much Cordage as will be a good reward for his paines, and so the State will save, according to the allowance in the Book, twenty five tuns of cordage, which is worth at the lowest price it can be bought now for, one Thousand Pounds. A thing considerable.

After the Rigging of these Ships followeth the Masts, where you have how many Hands the Mast must be of, that will serve for those Ships; this you may know, and know how many Inches are in a Hand, and yet be farre from knowing what lengths any of those Masts will prove, one of twenty one, or twenty two hands, making a Mast of two or three Yards longer then another of the same number of hands; besides the Mast-maker must be advised with, to know what wast in chips he will make of such Masts when he fits them for the Ships, and except the length of Mast and yards be known, there can be no Rigging truly proportioned or cut out for the Ship.

In the 17. page, and so on to the 30th, is set down Rigging for the Frigots, and there he hath some borrowed experience, but had he advised with that

that *Master* of attendance that Rigged most of the Frigots, he there mentions, he would have told him that those Rigging books had been very lame and imperfect, he would have informed him that there was a farre greater difference between the *Ruby* and the *Assurance*, for which he allows to both, the same Rigging, then there is between the *Speaker*, and the *Ruby*, or between the the *Assurance* and the *Nightingale* as may appear by their Masts and quantity of Rigging they were fitted with.

	<i>Speaker.</i>	<i>Ruby.</i>	<i>Assurance.</i>	<i>Nightingale.</i>
Main Mast ———	30 yards	28 $\frac{1}{2}$ yards	25 $\frac{1}{2}$ yards	23 $\frac{1}{2}$ yards.
Weight of Rigging	10 tun. 10 C.	8 tun. 10 C.	6 tun. 3 C.	4 tun. 13 C.

He would have told him that the Puttocks he hath inserted in the Fore-top Mast and Main top-mast rigging, are altogether superfluous, and not at all used;

	<i>Inch Speaker.</i>	<i>Inch Bristol.</i>	<i>Inch Nightingale.</i>	<i>Inch Martin.</i>
<i>Viz.</i> Fore-top Mast Puttocks	2. 24	2. 24	2. 24	2. 6.
Main-top Mast Puttocks	2. 34	2. 34	2. 24	2. 24

The Puttocks in the lower Masts being sufficient.

He would not have allowed the *Martin* a longer Main-stay, or Main-top-mast-stay then the *Nightingale*, nor a Coller for the Fore-stay to the *Nightingale* and *Martin*, above twice the lengths of either the *Speaker* or *Bristol*; he would have given Main-top-mast shrouds to the *Martin*, as well as Fore-top-mast Shrouds, and in divers other particulars, which will be too tedious to mention, he would have shewn him that he had been out of the way.

Next to the Rigging of the Frigots follows the Boatswains and Carpenters stores, with the Anchors and Ground-tackle for the several Ships and Frigots, wherein whether he hath truly Copied out the Boatswains or Carpenters Indents, or no, I know not, in regard I have not had to do with the greater Ships; but in the Anchors and Cables for the Frigots he is as much besides the truth, as he was in their Rigging: the *Ruby* and *Diamond*, with the rest of the bigger fourth-rate Frigots, have Anchors of 21 and 22 C. weight, and Cables of 14 $\frac{1}{2}$ Inches, and 15 Inches, whereas the *Adventure* and *Assurance* have their best Anchors but of 13 hundred weight, and their best Cables but of 13 $\frac{1}{2}$ Inches, and yet in the Book they are all allowed Anchors of the same weight, and Cables of the same sizes.

There is one thing more in the Stores, which requires the wit not onely of an intelligent Clerk, but of an expert Sea-man also to make use of, and that is the two Top-gallent sails, and the Sprit-sail, and Mizzen-top-sails of the *Nicodemus* and *Henrietta* Pinnace, which are not onely numbered amongst the Stores, but afterward measured out, where the quantitie of Canvas for each Ships sails is set down, and yet neither Mast nor Rigging allowed for them, and may we not judge that this allowance was made hand over head.

From the Stores he comes to the weight of Cordage, and observations about Rope-makers. If I had an insight into that Trade, I might discover much weakness in that, something to me seems very irrational: to name but one particular in the weight. Can any one give a reason, why a Cable of 3 $\frac{1}{2}$ Inches should weigh 63 pounds heavier than a Hauser of the same size and number of threds, and a Cable of 4 Inch should weigh $\frac{1}{2}$ of a hundred and twenty one l. lesser than a Hauser of the same size: But to wave his weights, Is there any proportion observed in the making of Cordage, where a hauser of 1 $\frac{1}{2}$ Inch hath 12 threds more then one of Inch, and one of 2 Inch hath but 3 threds more then one of 1 $\frac{1}{2}$ Inch and one of 2 $\frac{1}{2}$ Inch but 3 threds more, then one of 2 Inch; or that one hauser of 5 $\frac{1}{2}$ Inch should have but 12 threds more then one of 5 Inch, and one of 6 Inches have 54 threds more then one of 5 $\frac{1}{2}$ Inch, or that one of 8 Inch should have but 24 threds more then one of 7 $\frac{1}{2}$; and one of 8 $\frac{1}{2}$ should have 72 threds more then one of 8 Inches; or is it possible that a Cable of 20 Inches shoul contain as many threds as one of 19 Inches; and one of 19 Inches, if there be any certainty in a rule of proportion, that number of threds will make one of 23 or 24 Inches; certainly that Rope-maker that gave him these observations, plaid the Wagg with him, to make him to be laughed at.

Whether the Boat-maker hath dealt faithfully with him in the dimensions of the Ships, Boats, or no, I know not, but I am certain they bear not a like proportion one to the other, the Purveyor can best tell, (if he looks over the stores) whether they be duly prized.

As for the quantity of canvas in each Ships Sailer, except it be known what depth, and what number of cloaths be in every Sail: it cannot be discovered whether the Sail maker hath put in all that cloth into them or no.

And as for his weight of each Ships rigging, and Ground-tackle. I may safely affirm, he hath not gone by the rule he himself lays down for the weight of Coardage, I shall instance onely in their Ground-tackle, and other coardage, for stores.

The weight in the Booke.

Cast up by the weight in the Book.

	Tunns	C.	q.	l.		Tunns	C.	q.	l.
<i>Sovereigne</i>	60.	08.	2.	14		53.	17.	1.	04.
<i>Resolution</i>	50.	12.	2.	00.		47.	19.	1.	21.
<i>Triumph</i>	36.	13.	2.	21.		31.	09.	3.	15.
<i>Victory</i>	28.	04.	3.	14.		26.	16.	0.	14.
<i>Entrance</i>	22.	03.	0	00.		20.	09.	3.	26.
<i>Providence</i>	16.	05.	3.	21.		14.	05.	2.	22.
<i>Whelpe</i>	8.	07.	2.	07.		07.	01.	2.	09.
<i>Smal-pinnace</i>	5.	07.	3.	07.		04.	04.	0.	14.

To conclude, by all it doth appear, that whereas the author boasts, that much of this book hath been his own paines, and part borrowed experience, the whole is but a confused collection of things taken upon trust from others without examination of the truth, or reason of them; there being little of either to be found, and whereas he affirms, that one maine inducement in committing it to the presse, was to give the Right Honourable, the Commissioners of the admiralty satisfaction,

—That the Shippes are fitted regularly with riggings and stores, in reference to Boat-swainers, and Carpenters, and not hand over head, and without caution. It is evident, that if his rules be observed, there will appear very little, either regularity, or caution. And thus have you *The intelligent Clerk Surveyed*, and now what doth his work call for, but that Justice should be done upon it, as is usuall upon such books, as are either scandalous to, or abusive of the State, (a greater and more subtil fraud being rare to be found) and I doubt not but that they, who are intrusted in management of the affaires of the Navy, will so far take it into consideration, as to do the Common Wealth right in the businesse.

Postscript.

To prevent a question that may be made, viz. Whether the *Naseby Swisfure* and *providence* were sufficiently rigged, take notice that the two last were rigged by Mr. *Thomas Scot* now Master of attendance at Deptford, a man of known integrity, and ability for the performance of that work. The *Naseby* was rigged at *Woolwich*, when there was no Master of attendance there, yet the testimony annexed was given of it by Mr. *Arkenstall*, one of the Masters of attendance at *Chatham*, when she was rigged and ready to set sail from *Woolwich*.

These are to certifie, that the *Naseby Frigate* is sufficiently rigged: and that the sizes and lengths of each particular rope in sight, is large enough for service, as far as I am able to judge. Dated at *Woolwich* this 26th day of April, 1655.

Thomas Arkenstall.

FINIS.

The Author to his Book.

FRowns, Scorns, Taunts, Threats, my Book thou must expect,
From them, whose fallhood thou dost here detect.
All the sworn brothers will at once conspire
Gainst thee and me, and thus will vent their ire,
What? shall a Clerk that's but of yesterday,
That scarcely knows the use of Shroud or Stay,
Question the lengths of Ropes we give? shall we
That have been bred up in the Navy, be
Subject to give account for what we do,
Or what allowances we make? if so,
It will be sad to us, we'l therefore see
What friends we have, and they engag'd shall be
To plead for us. Of them affirm one shall
That these are but meer niceties: if all
Other Ships rigging books were but perus'd,
It may be said in them the State's abus'd:
Scarce two Ships rigging you'l find to agree,
Though of the same dimensions they be.
If this prevail not, then another friend,
Shall plead it's not a season to attend
The regulating this; things of more weight,
Require the present time: by this means straight
It shall be laid by to another day,
Then we are safe, we shall have time to play
Our game the better: there's hopes we shall finde
Some way to put this thing quite out of minde.
We'l plead the Author is a busie man,
To whom if ears be open, no end can

He mocke of quarrels: he will yet complain,
Of this, and that, and of other thing again.
We'll privately repair (though't be untrue)
His life is loose, such slanders are not new.
Some dirt will stick, if dirt enough we cast,
Thus we his credit will keepe still as last.
But thou poor Book, wilt scarcely finde a friend
That dares plead for thee, lest he should offend.
Yet be not dismayed, time will shortly be
When truth, not friends, the fault prevailing see.

FINIS.

